DOCUMENT RESUME

ED 223 244 IR 010 507

AUTHOR Cronnell, Bruce
TITLE Computer Instruction for Generating and Revising/Editing Narrative Text.
INSTITUTION Southwest Regional Laboratory for Educational Research and Development, Los Alamitos, Calif.
REPORT NO SWRL-WP-2-82/02
PUB DATE 1 Jul 82
NOTE 13p.
PUB TYPE Viewpoints (120)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Autoinstructional Aids; *Computer Programs; Creative Writing; *Editing; Educational Media; Feedback; Instructional Materials; *Word Processing; *Writing Instruction
IDENTIFIERS *Interactive Systems

ABSTRACT

This paper outlines a proposed procedure for using an interactive computer-based approach to assist students in composing text on a word processor. It is suggested that the computer could provide the stimulus for writing, assist students during the writing process, and help the student to revise and edit the text. The first section explains the basic procedures which include instructing students in the use of a specialized word processor. The paper does not specify a particular word processor to be used, but suggests that it would be one especially developed for instructional purposes, rather than a commercially available model. The next section suggests ways of stimulating story development, using a film displayed from videotape or videodisc. Ways in which students would receive help are then described. The revising/editing procedures are discussed, with an explanation of computer functions including spelling, capitalization, and punctuation checks, as well as analyses of sentence structure and variety. The concluding section emphasizes that, though the procedures are straightforward, specification would be complex and time consuming, and time and hardware constraints may influence actual development of the envisioned instruction. (LMM)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED223244

IR

SOUTHWEST REGIONAL LABORATORY
WORKING PAPER

DATE: July 1, 1982

NO: WP 2-82/02

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

This document has been reproduced as received from the person or organization originating it.

Minor changes have been made to improve reproduction quality.

Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

COMPUTER INSTRUCTION FOR GENERATING AND REVISING/EDITING NARRATIVE TEXT

Bruce Cronnell

ABSTRACT

General specifications are provided for computer-based instruction in generating and revising/editing stories. The student is presented with a filmed story to write about and is provided assistance while composing on a word-processor. When the student has completed the story, the computer analyzes the story and interacts with the student to help her/him revise and edit the story.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Bruce Cronnell

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

IR010507

This document is intended for internal staff distribution and use. Permission to reprint or quote from this working document, wholly or in part, should be obtained from SWRL, 4665 Lampson Avenue, Los Alamitos, California 90720.

COMPUTER INSTRUCTION FOR GENERATING AND REVISING/EDITING NARRATIVE TEXT

Bruce Cronnell

One goal of computer-based instruction in composition is to have the computer interact with students while they are composing text on a word processor. The computer could provide the stimulus for writing, assist the student while he/she is writing, and help the student to revise and edit the text. This paper outlines a procedure to do these tasks for the writing of narration. The scenario contains many operational details, and additional specifications needed to make the application operational are also noted in the paper.

Basic Procedures

Before students could begin using this proposed instructional module, they would have to learn how to use a specialized word processor. Word-processor instruction would be both off-line and on-line. The particular word processor used in instruction is not specified in this paper; it would not be one commercially available, but one specially developed for instructional purposes. There are two reasons for this. First, the word-processor software must share the same disk as the instructional software so that the computer-student interaction can take place efficiently during the writing process. Secondly, most commerical word-processing programs are more sophisticated/complex than is needed for student writing.

The word processor would have several basic requirements: upper- and lower-case letters, word wrapping at line breaks, scrolling. Moreover, its function keys (e.g., for capitalization, deletion, insertion) would be straightforward and easy to use. Other characteristics of a word processor optionally appropriate for instructional use can be specified later; however, all such features are technically straightforward design matters.

When a student is ready to use this narrative-text program, she/he would insert two disks into the disk drives: the program disk and the individual student disk, on which text produced would be recorded.

The computer would first display certain title screens and then a menu. The menu would list a series of story titles, and the student could select the story that she/he wished to write about. Only a single story is exemplified in this paper, one based on pictures available in SWRL files and consequently used for illustrative convenience. The story is obviously intended for elementary-school students; more sophisticated stories could also be used. The basic computer procedures suggested here would be used with all stories, with variations in wording--and in illustrations--inserted at the appropriate places depending on the story chosen by the student.

If the student has not used the program before (as evidenced by a blank student disk), the computer introduces the operation of the program. If the student has used the program before, the computer reviews the operation of the program and sends the student to where she/he left off the last time when in the midst of a story.

The following are critical operational procedures in the program:

1. When the student's first name followed by a question mark is displayed, the student is expected to make a response.
2. After the student has made a response, she/he must push the RETURN key.
3. Four special function keys (referred to as W, X, Y, and Z in this paper) must be used to signal specific functions to the computer:

   W = to exit the program

   X = to ask for help

   Y = to indicate completion of writing

   Z = to scroll text

   Ideally, a labeled key would be used for each function (i.e., BYE, HELP, DONE, SCROLL). However, the keyboards for some computers (e.g., the Apple II) do not have enough extra keys to permit this. Therefore, the solution may be to have the student push a function key (but not the one used for upper-case letters) and then type a word (e.g., "bye") or a letter, chosen for mnemonic value (e.g., "E" for exit/end.)

Writing

The student is introduced to the content of the story to be written--the characters and perhaps the setting (and maybe even something about the story content). Then a filmed version of the story is presented. The film would be displayed from either videotape or videodisc and would be displayed either on the screen on which text is displayed or on a separate monitor.

The film can be either animated or live-action. It can present either a complete story for students to write or an open-ended story for students to complete. After the film is displayed, the student is told to write her/his story. While the student is writing, one or more still pictures from the story remains on the screen (whatever screen the film was displayed on) to remind the student of story content.

See Figure 1 for a sample of the displays that might be shown at this stage.

At the top of the screen where the student is to enter text, the title of the story is given (to ensure that the story is titled and to help remind the student of story content). The title is the beginning of the student's text; it is part of the student's text and scrolls off the top of the screen (along with text) when text fills up the screen.

Help

The student receives help in one of two ways:

1. When the student pushes the X function key, the help menu is presented, either in a "window" on the screen or on a screen that replaces the student text.
2. When the student stops typing for 60 seconds, a message is displayed at the bottom of the screen asking if the student wants some help.
   a. If the student responds "yes," the help menu is presented.
   b. If the student responds "no," the question message is replaced briefly with the message "WRITE SOME MORE."

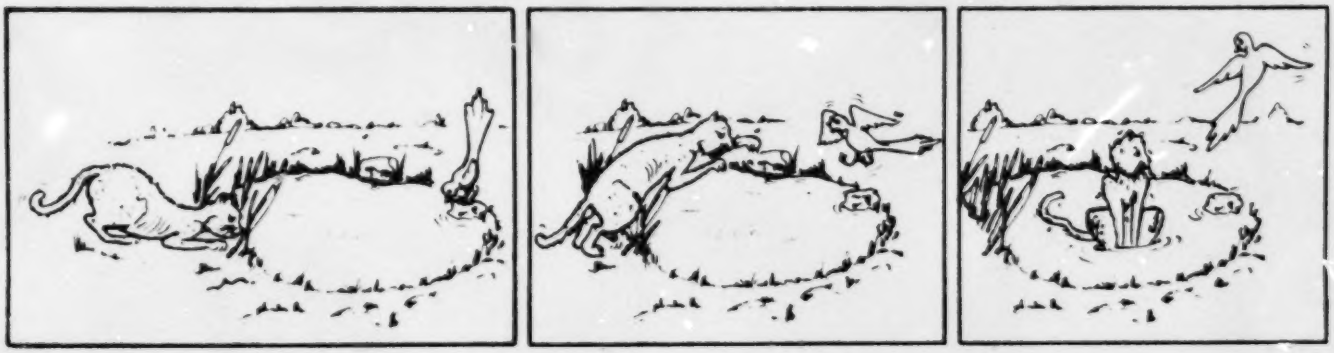
1. Today you will write a story.

   [picture of cat]
   [picture of bird]

   The story is about a cat and a bird.

   Watch to see what the cat and the bird do.

2. Display animated version of the story suggested by the following pictures.*



3. Now write a story about the cat and the bird.

   Tell what the cat does and what the bird does.

Figure 1. Sample Displays to Introduce Writing Task

*During student writing, these three pictures would be displayed.

The help menu asks the student what kind of help she/he wants:

1. to see the film again
2. to figure out what to write next
3. to see some words to use in the story
4. to see what she/he has written
5. to stop writing

The student responds by typing in the number of the help wanted, and the computer responds appropriately:

1. The filmed version of the story is presented (as described above).
2. Questions are displayed to encourage writing. For example, for the sample story used in this paper:

   What does the cat do?

   What does the bird do?

   Where does the story happen?

3. Words are displayed that might be used in the story. For example, for the sample story:

cat	bird	next
water	pond	then
catch	hide	after
fall	wet	before

4. The student text is displayed from the beginning. (The student is instructed to use the Z function key to scroll additional text onto the screen.)
5. A message is displayed asking the student whether she/he has finished writing her/his story. If yes, the program moves to "Revising/Editing" (see below); if no, the program returns to the student text.

After each of these helps is shown (except after a "yes" response to number 5), the computer returns to the student text, displaying briefly the message "WRITE SOME MORE."

Revising/Editing

When the student pushes the Y function key or when the student answers "yes" to question 5 of "Help," the student is assumed to have completed her/his first draft. Although the student may have made changes while writing the text, the next part of the program focuses specifically on revising and editing.*

Research suggests that the first step in changing text is to make revisions--that is, make changes in substance. Then the text is edited--that is, surface features (e.g., spelling, punctuation, capitalization) are corrected. While this order is practical for ordinary writing, it does not work well for computer interaction with the changing process. Since the computer reads text literally, errors must be corrected first so that the computer can make more "intelligent" suggestions for more complicated revisions.

In the first step of the "Revising/Editing" procedure, the student is told to read her/his story again and to correct any mistakes and make any changes that will make the story better. (Ideally, the student would have done this before exiting the writing part of the program. However,

*The revision and editing routines outlined here are only a few of many that could be incorporated into a computer instructional program. The exact changes to be treated in the program would depend on many factors, such as grade level, story content, and relation to ongoing classroom instruction in composition

this step ensures that students do in fact re-read their texts.) The student text is displayed from the beginning; the student scrolls through it, making any changes and corrections. When the student has gone through her/his text, the program returns to the remainder of the "Revising/Editing" steps.

The second step is a computer check of the spellings in the student text. The computer has a small dictionary in memory; i.e., a word list of 3,000-5,000 words, including all words expected in the story. (There can be space limitations if a dictionary is included in the instructional software; if so, the dictionary could be on a separate disk that the student is directed to use.) The computer matches words in the student text against words in the dictionary, ignoring capitalization and accepting forms with inflectional suffixes. For each text word not found in the dictionary, the sentence containing the word is displayed with the unmatched word underlined. A message is also displayed:

> You have a word that I don't understand.
>
> Please check the underlined word to be sure that it is spelled right.
>
> Correct the spelling of the word and push RETURN. If the word is right, just push RETURN.

Note that the student is allowed to continue without a correction if she/he thinks the word is correct, because the unmatched word may in fact be a correct word that is not in the dictionary. Note also that this routine does not ensure that all spellings are appropriate; for example, incorrectly used homophones would be treated as correct spellings.

Next the computer searches for a capital letter at the beginning of the text and after each terminal punctuation mark (i.e., period, question mark, exclamation mark). For each missing capital letter, the computer displays the sentence needing capitalization, along with the preceding sentence, and asks the student to add a capital letter. If the student does not respond or responds incorrectly, the computer performs the capitalization and graphically highlights it.*

A similar procedure is used to check for lack of terminal punctuation and to have the student add the appropriate mark. The computer searches for terminal punctuation at the end of the text and before each capital letter, with the following exceptions: the first word in the text; the titles Mr., Mrs., Ms., Dr., Miss; words that are likely to be names in the story (e.g., in the sample story: "Bird," "Cat," or "Pond"). However, students may misuse capital letters by placing them within sentences or they may use proper nouns within sentences. Consequently, so that inappropriate periods are not added, the computer does not automatically add a period if the student does not make a correction (as opposed to the automatic capitalization provided for above).

The next two steps are designed to help students improve their sentence structure: to combine short sentences or to break up long sentences.** First the computer searches for any consecutive sequence of

---

*This procedure will add inappropriate capital letters if abbreviations are used in the text. However, abbreviations are generally not acceptable in text (except for titles, which are followed by capitalized names).

**The word length to define short and long sentences may vary depending on grade level; the numbers used here are appropriate for elementary school.

two sentences, both shorter than five words. The pair of short sentences is displayed, with the notation that they are short and the question "Can you turn them into one sentence?" Next the computer searches for any sentence longer than 20 words. The long sentence is displayed, with the notation that it is long and the question "Can you change this into two shorter sentences?"

The following step is designed to improve sentence variety. The computer searches for any two (or more) consecutive sentences beginning with the same word or, in the case of sentences that begin with "A," "An," or "The," beginning with the same two words. If such sentences are found, they are displayed, with the notation that they begin the same way and the question "Can you change one sentence to make the beginnings different?"

The computer then searches, one at a time, for specific words that would be expected in the story the student has written; e.g., in the sample story: bird, cat, pond/water, next/then/after/before. If the specified word or words are not found, the computer displays (e.g., if none of the last set of words is found) the following:

> You forgot to say when things happen in the story.
>
> You could use words like "next," "then," "after," and "before."
>
> Go back and use words that tell when things happen in your story.

Then the student text is displayed from the beginning so that the student can add specific words.

After the revision routines are completed, the computer returns to the editing routines to correct any errors that may have been made during revision. Spelling, capitalization, and punctuation are checked

again (see above), and the student is directed to re-read her/his text to check for errors.

After the student has written and revised/edited her/his text, the text is printed out so that a hard copy is available.

CONCLUSION

This paper has outlined a procedure for computer-based instruction to help students to write, revise, and edit narratives. Although this outline is relatively straightforward, the computer specifications for such instruction would necessarily be rather complex (including various branchings, limitations, and termination routines). Moreover, programming for such instruction would be very sophisticated; just programming one story would take a considerable amount of time; programming a menu of stories would be a huge project. In addition, programming for a word-processor component is a major undertaking. Finally, there are hardware problems: The envisioned instruction would be most easily handled through the use of videodisc, but videodiscs currently are not in common use and are also too expensive to produce to make such instruction economically viable. Still, this paper has suggested how--given commitment of time and resources--computer-student interaction could improve writing instruction.